

```
CMS
ipl 192
Linux version 2.2.1 (root@cheapo.rvdheij.iae.nl) (gcc version egcs-2.91.66 19990
314 (egcs-1.1.2 release)) #78 Mon Dec 13 20:57:33 CET 1999
SAPL booting from VM991209 MODULE dated 991213 150338
Command line: root=/dev/mem ramdisk_cmsfile=root2.disk
register eckd0 at major=60 i_dev=0
Device 9 is console (5, 1)
register eckd1 at major=60 i_dev=0
register eckd2 at major=60 i_dev=0
register eckd3 at major=60 i_dev=0
register eckd4 at major=60 i_dev=0
register eckd5 at major=60 i_dev=0
vm_load_ramdisk()
Loaded ROOT2 - DISK
exit vm_load_ramdisk()
trap init with storage key=
enter time init
exit time init
vid3270_puts 1 chars at (0,0):
vid3270_puts 1 chars at (0,0):
vid3270_puts 79 chars at (0,1):
Console: mono vid3270 80x24
Calibrating delay loop... 1464.73 Bog
trap init with storage key=6
Memory: 6192k available (528k code, 3424k data, 32k init)
Init Ramdisk: 0k [000d3000,003d3000]
kmem_test() - start
kmem_free: Bad front redzone (objp=003f6004, name=test-cachep)
kmem_free: Bad rear redzone (objp=003f6004, name=test-cachep)
kmem_test() - finished
POSIX conformance testing by UNIFIX
i370_kernel_thread
i370_sys_clone flags=0xf00
i370_copy_thread, usp=0xa1fe8
i370_copy_thread: finished swapper pid=1 regs=003fe764
i370_sys_clone(): after do_fork, res=1
i370_kernel_thread(): return from clone, pid=1
```

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Prospects and Constraints of Free and Open Source Software (F/OSS)

MORE... PUCC

042/001



Can you play videos on THIS?

content of **lecture**

- What is '**free software**'?
- What is '**open software**'?
- **Criticism** of **proprietary** software
- Prospects and **constraints** of F/OSS
- F/OSS Examples :
Wikipedia, Linux in Brasil

the **forming** of F/OSS

- 1950's to 1970's: **sharing** information, **modifying** and **redistributing** codes essential for IT development
- 1970's: the computer enters **social** and **political** spheres

"Information was much more than (...) a commercial commodity. It was the life's blood of democratic politics, and as such too precious to conceded to corporate and government control."
Roszak 1988 p.164
- 1980's: companies introduced **license-agreements**, **user-restrictions** and **copyrights** on software codes. Software becomes a commodity.

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the **forming** of F/OSS

- The idea of the free flow of information has survived and developed. Open software is constantly **challenging** the idea of proprietary code and closed technology (like the ipod)
- Today, **two strands** of non-proprietary software have developed, 'free software' and 'open source software' aka as **F/OSS**

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what is **open** software?

"[...] a model of software development in which **the underlying code of a program** (the source code, a.k.a. the crown jewels) is **by definition** made **freely available** to the general public for modification, alteration, and endless redistribution [...]"

(Leonard 1999)

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what is open software?

<http://www.opensource.org>

Open Software Initiative (1998)

'Free Software Movement has a confrontational attitude!'

- Open Software is **good for business!** Free software exclusively on the grounds of technical superiority rather than on ethical grounds.
- Open software community rather a **bazaar** as opposed to big corporation's **cathedral**-style organisation
 - "Given enough eyeballs, all bugs are shallow!"
Raymond (1998)

what is open software?

- Open software as a **business-strategy**

"The combination of good software and messianic faith - the Internet's fabled "gift economy" - that spawned the technocultural phenomenon of free software in the '80s has today morphed into both a business strategy and a way of life." *Leonard (1999)*

- Examples: Linux, Apache Web-Server, (some) Blog-Software e.g. 'wordpress', Firefox, Mac OSX kernel

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what is **free** software?

"All software should be free!"
(as in the sense of freedom, not necessarily
as in the sense of free beer ...)

<http://www.fsf.org>

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what is **free** software?

- The freedom to **run** the program, for any purpose.
- The freedom to **study** how the program works
- The freedom to **redistribute** copies
- The freedom to **improve** the program, and release your improvements to the public, so that the whole community benefits.

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what is **free** software?

- **Free Software Foundation** (1985)

"is based on an ideal of solidarity and shared knowledge for the good of the community, and society as a whole."

- **GNU** project (Gnu is Not Unix), a "free" Unix-style operating system

- **GNU General Public Licence**, the licence under which free software can be distributed ("Copyleft")

'free' and 'open' software: **differences**

- the **operational definitions** of free and open-source software are the **same** (eg compare licenses)

- Both share collaborative approach to software development and idea of **gift-economy** based on free labor and a highly networked community.

- Free Software wants to develop software that has a **social** and **political impact**

- Neither free nor open software is necessarily free-of-cost

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proprietary software: **criticism**

Proprietary software is unseen code and not subject to scrutiny by the public.

The source code is well guarded like a trade secret - protected by licenses and copyrights. The only way to reveal the code is by 'reverse engineering'

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proprietary software: **criticism**

"Big corporations try to artificially impose scarcity onto the natural abundance of digital information and its innate replicability by becoming gatekeepers and controlling the distribution and access to any information." *Berry (2002)*

"All technologies involve political choices and moral values. Computer software is no exception, and it is Bill Gates' choices that dominate." *Sharp (undated)*

"The **risk** is to see **innovation** being directed **from the top down**, increasingly controlled by owners of the networks, holders of the largest patent portfolios and owners of copyrights." *Lessig (2002)*

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proprietary software: **criticism**

- Code becomes subject to the **capitalist** mode of production, and distribution.
- Digital **imperialism**: occupying territory in order to exploit resources and to control the market
- Proprietary software is a **trap** of ongoing dependency, aggravating the 'digital divide'.
"Sending information in Microsoft Word format to correspondents in Eritrea is analogous to Nestle advertising baby milk powder to Indian mothers."
Yee (1999)

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proprietary software: **criticism**

- Proprietary software is **inferior** to open software:
eg the majority of servers run on Linux

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proprietary software: **criticism**

Compare WWW and MySpace

"The decision to make the Web an open system was necessary for it to be universal.

You can't propose that something be a universal space and at the same time keep control of it."

Tim Berners-Lee

F/OSS: **prospects and constraints**

- Open source software and OS offer viable solutions for the non-profit and **civil-society sector** (e.g. Linux)
- F/OSS model is a **community based** model allowing a collaborative spirit and the sharing of information. Software as 'public good'.
- F/OSS **bridging the digital divide?**
Collectives in Brasil or in Guinea are assembling recycled computer installing F/OSS.

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F/OSS: prospects and constraints

- F/OSS and usability

"Most open-source software is written by hackers aching to 'scratch their itch' - to solve some particular problem unique to their own circumstances. It is far from clear that itch-scratching will lead to user-friendly interfaces that can match the sophistication of Microsoft Windows or the Macintosh OS."

Leonard (1999)



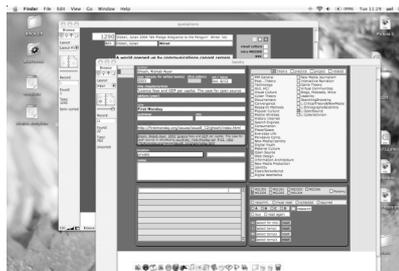
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GUI: usability vs. controllability?

```
[localhost:~] gilles$ ls -lRta
total 80
drwxr-xr-x  17 gilles staff  534 Jun  5 21:32 .
drwxr-xr-x  18 root  admin  296 Jun  1 07:39 ..
-rw-r--r--   1 gilles staff   3 Nov 29 07:22 .GlibSchemasEncoding
-rw-r--r--   1 gilles staff  826 Jun  2 15:02 .OS_Store
-rw-r--r--   1 gilles staff 6144 Jun  2 12:29 .FBIIndex
drwxr-xr-x   3 gilles staff   92 Jun  5 21:32 .FBLOCKFolder
drwxr-xr-x   3 gilles staff   92 Dec 30 19:19 .Trash
-rw-r--r--   1 gilles staff  64 Dec 21 05:43 .preferences
-rw-r--r--   1 gilles staff  92 Dec 11 17:32 .tech.history
drwxr-xr-x   3 gilles staff   92 Nov 30 16:23 Documentation
drwxr-xr-x  13 gilles staff  398 Dec 21 21:47 Documents
-rw-r--r--   1 root  staff   0 Nov 20 16:53 E7rlouge Saint-Bernard
drwxr-xr-x  14 gilles staff  432 Jun  5 21:34 Library
drwx-----  6 gilles staff  160 Jun  5 21:32 MailAccounts
drwxr-xr-x   6 gilles staff  228 Jun  5 21:32 Mailboxes
drwxr-xr-x   3 gilles staff   92 Nov 27 20:27 Public
-rw-r--r--   1 gilles staff   0 Dec 11 17:23 test

./FBLOCKFolder:
total 8
drwxr-xr-x   3 gilles staff   92 Jan  5 21:32 .
drwxr-xr-x  17 gilles staff  534 Jan  5 21:32 ..
```



CLI (Command Line Interface):
Developing,
Controlling, Tinkering,
Manipulating

GUI (Graphical User Interface):
Using, interacting, playing,
browsing

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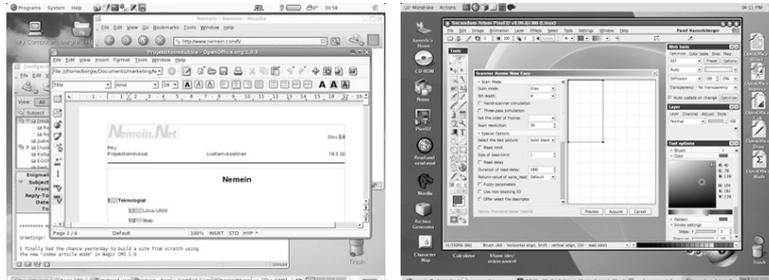
GUI: usability vs. controllability?

GUI (Graphical User Interface)

- Constraining users to pre-designed options: Usability at the expense of controllability
- GUI empowering or disempowering?
- IT as commodity; Example: the first Mac, ipod

GUI: usability vs. controllability?

- F/OSS has embraced the idea of the GUI (e.g. Linux)
- Open Source GUI have become distinctive fields of research and development



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case study: **Wikipedia**

"Wikipedia is a **Web-based free content encyclopedia** that is **openly edited** and **freely readable**. It has 187 independent language editions sponsored by the **non-profit** Wikimedia Foundation." <http://en.wikipedia.org/wiki/Wikipedia>

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case study: **Wikipedia**

What makes Wikipedia **different** to other encyclopedias?

- It is created and surveyed by its **users**
- **policy**: "describing disputes rather than engaging in them"
- no article is ever **finished**

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case study: **Wikipedia**

Critique: **lack of authority**

“Wikipedia has been accused of exhibiting systemic **bias** and **inconsistency**; critics argue that Wikipedia's open nature, and **favouring consensus** over credentials in its editorial process, makes it **unauthoritative**, and that a lack of proper sources for much of the information makes it unreliable, although the converse of the same argument can also be argued.”

<http://en.wikipedia.org/wiki/Wikipedia>

case study: **Wikipedia**

The **Open Source** movement's answer to HG Wells idea of a **World Brain**

The Wiki projects revive the **spirit of the cyber-optimistic dreams** of computer visionairs like Ted Nelson and Tim Berner-Lee making use of the **hypertextual** features of the WWW and practicing a global, **collaborative** (non-profit) culture.

"Wikipedia has been viewed as a grand social experiment. Its founder has replied that it is not intended as one, though it is a consequence." <http://en.wikipedia.org/wiki/Wikipedia>

case study: Brazil goes Linux

Linux Roolz!



2005: The government **promotes** the **adoption of free software**: Ministries and schools are migrating their offices from Microsoft Windows to open source systems

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case study: Brazil goes Linux



- Microsoft license fees for one workstation: 500 USD/year; switch could save \$120m a year (Kingstone 2005)

"Every license for Office plus Windows in Brazil - a country in which 22 million people are starving - means we have to export 60 sacks of soybeans"

Marcelo D'Elia Branco, coordinator of the country's Free Software Project (cited in Dibbell 2004)

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case study: **Brazil goes Linux**



- Linux based solutions for digital inclusion programmes; low cost and adaptability for local needs
- Microsoft reaction: providing free trimmed down version of WindowsXP;

Microsoft's giveaways are a "**drug-dealer practice**, a Trojan horse, a form of securing critical mass to continue constraining the country." Member of government, cited in Dibbell 2004

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case study: **Brazil goes Linux**



Wider **problem**: Intellectual property, copyright, patents, license fees in developing countries

Example: retroviral drugs for people with HIV (Brazil and South Africa)

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